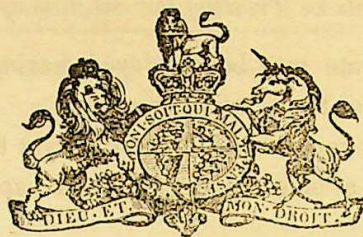


426/64

AVERAGES

299 50 1867
(1)

RECORDED

A.D. 1867, 27th NOVEMBER. N° 3359.

Treating the Solution of Malt for Brewing.

LETTERS PATENT to Edward Belknap, of Mortimer Street, Cavendish Square, in the County of Middlesex, for the Invention of "IMPROVEMENTS IN THE TREATMENT OF THE SOLUTION OF MALT FOR BREWING."

Sealed the 9th April 1868, and dated the 27th November 1867.

PROVISIONAL SPECIFICATION left by the said Edward Belknap at the Office of the Commissioners of Patents, with his Petition, on the 27th November 1867.

I, EDWARD BELKNAP, of Mortimer Street, Cavendish Square, in the County of Middlesex, do hereby declare the nature of the said Invention for "IMPROVEMENTS IN THE TREATMENT OF THE SOLUTION OF MALT FOR BREWING," to be as follows:—

This Invention relates to certain improvements in the treatment of the wort or solution of malt used in the process of brewing, and consists in a novel method of purifying the wort after washing and before fermentation.

I propose to add to the solution or wort the sulphate of baryta and hydrate of lime, which have a stronger affinity for the gluten, albumen, and nitrogenous elements of the wort than for the saccharine solution, and which form with them an insoluble compound, which coagulates and subsides as a dense precipitate, no portion of the added chemicals remaining in the beer. The wort thus purified is then to be hopped, boiled, and fermented in the usual manner.

Belknap's Improvements in Treating the Solution of Malt for Brewing.

Other sulphate or hydrate may be employed having a similar affinity for the nitrogenous elements of the solution or wort.

The proportions are 1 ounce of sulphate of baryta to 1 gallon of wort, and sufficient lime to cause a blue tinge on litmus paper when dipped in the solution.

5

SPECIFICATION in pursuance of the conditions of the Letters Patent, filed by the said Edward Belknap in the Great Seal Patent Office on the 25th May 1868.

TO ALL TO WHOM THESE PRESENTS SHALL COME, I, EDWARD BELKNAP, of Mortimer Street, Cavendish Square, in the County of Middlesex, 10 send greeting.

WHEREAS Her most Excellent Majesty Queen Victoria, by Her Letters Patent, bearing date the Twenty-seventh day of November, in the year of our Lord One thousand eight hundred and sixty-seven, in the thirty-first year of Her reign, did, for Herself, Her heirs and successors, give and grant unto 15 me, the said Edward Belknap, Her special licence that I, the said Edward Belknap, my executors, administrators, and assigns, or such others as I, the said Edward Belknap, my executors, administrators, and assigns, should at any time agree with, and no others, from time to time and at all times thereafter during the term therein expressed, should and lawfully might make, 20 use, exercise, and vend, within the United Kingdom of Great Britain and Ireland, the Channel Islands, and Isle of Man, an Invention for "IMPROVEMENTS IN THE TREATMENT OF THE SOLUTION OF MALT FOR BREWING," upon the condition (amongst others) that I, the said Edward Belknap, my executors or administrators, by an instrument in writing under my, or their, 25 or one of their hands and seals, should particularly describe and ascertain the nature of the said Invention, and in what manner the same was to be performed, and cause the same to be filed in the Great Seal Patent Office within six calendar months next and immediately after the date of the said Letters Patent.

30

NOW KNOW YE, that I, the said Edward Belknap, do hereby declare the nature of my said Invention, and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

This Invention relates to certain improvements in the treatment of the 35 wort or solution of malt used in the process of brewing, and consists,—

Belknap's Improvements in Treating the Solution of Malt for Brewing.

First. In cleansing or purifying the wort after mashing and before fermentation by means of the alkalies, alkaline earths, alkaline hydrates, and alkaline silicates, or any or all of them, either separate or mixed, and thereby causing a more complete coagulation and separation of the albuminous elements held
5 in solution than can be effected by boiling only as now generally practised.

Second. In effecting the precipitation of albuminous and other matters from the wort by the addition to the same of an insoluble ponderable body in a finely pulverized state capable of being mechanically diffused through the wort, together with alkalies, alkaline earths, alkaline hydrates, and alkaline
10 silicates, as follows:—

For very large brewings I prefer to take the wort after it has been hopped and boiled, and separated from the hops by drawing it off into a special vessel to which heat can be applied, and add to it a solution of silicate of soda of the specific gravity of about 1040 at 60° Fahrenheit, in the proportion of
15 about one part in volume of silicate to two hundred parts of wort. I then add hydrate of lime in preference in the state of cream or milk of lime sufficient to produce a slight alkaline reaction, which is ascertained with certainty by the appearance of a faint blue tinge on red litmus paper when moistened with the treated wort. The temperature of the liquid is then to be raised to
20 boiling and kept at that point for one or two minutes. After which it is passed into the coolers and cooled, fermented, and treated in the same way as when brewed in the usual manner.

The mode in which I prefer to proceed with small brewings is as follows:— I add to the wort in the copper along with the hops just before the boiling is
25 finished pure sulphate of baryta in a pulverized state at the rate of about two pounds of the sulphate to each barrel of wort, and then add the cream or milk of lime, as before, so as to produce a slight alkaline reaction; the boiling is then continued for one or two minutes, and the wort, together with the hops, is run into the hop back and allowed to stand for upwards of half an
30 hour in order that the impurities may settle to the bottom, after which the wort is run on to the coolers and cooled, fermented, and treated as in dealing with worts in the ordinary manner; but if this small brewing was of porter, stout, or dark colored ale I should also add to the wort a solution of silicate of soda of the strength above stated, and in the proportion of about one part
35 in volume of the silicate to two hundred parts of wort after the addition of the sulphate of baryta and before the addition of the cream or milk of lime.

In the above process any insoluble ponderable body, such as powdered glass or powdered flints may be diffused through the wort in place of the pulverized sulphate of baryta for the purpose of precipitating the coagulum, but

Belknap's Improvements in Treating the Solution of Malt for Brewing.

sulphate of baryta is preferred, as it has been found by experience not to injure the copper in any degree.

Potash, soda, and magnesia may likewise be used in place of the hydrate of lime in any or all of the above processes, but I much prefer the hydrate of lime and in the form of cream or milk of lime. 5

Any soluble alkaline silicate may also be substituted for silicate of soda where that salt is employed.

Although, as above mentioned, the chemical agents are used in certain proportions, and at stated times during the brewing, I do not restrict myself to the limits named, as other proportions may be substituted; they may also all 10 be added before the hops or with the hops, or before or after the wort is separated from them, and in general I may say that purification of the wort by my method may be caused to take place at any time between the processes of mashing and fermentation.

In witness whereof, I, the said Edward Belknap, have hereunto set my 15 hand and seal, this Twenty-third day of May, in the year of our Lord One thousand eight hundred and sixty-eight.

EDWARD BELKNAP. (L.S.)

LONDON:

Printed by GEORGE EDWARD EYRE and WILLIAM SPOTTISWOODE,
Printers to the Queen's most Excellent Majesty. 1868.